## REMARKS

Claims 1-20 were examined and reported in the Office Action. Claims 1-20 are rejected. Claims 1, 3-6, 8-9 and 12-19 are amended. Claims 1-20 remain.

Applicant requests reconsideration of the application in view of the following remarks.

### I. In the Drawings

The drawings are objected to because of minor informalities. Applicant has enclosed replacement sheets for Figures 1 and 2 in compliance with 37 C.F.R. 1.121(d) to overcome the objections. Approval is respectfully requested.

### II. 35 U.S.C. § 112

**A.** It is asserted in the Office Action that claims 3, 5, 6, 8 and 15 are rejected in the Office Action under 35 U.S.C. 112, second paragraph, for improper antecedent basis. Applicant has amended claims 1, 5, 6, 8 and 15 to overcome the 35 U.S.C. 112, second paragraph rejections.

Accordingly, withdrawal of the 35 U.S.C. 112, second paragraph rejections for claims 3, 5, 6, 8 and 15 are respectfully requested.

**B.** It is asserted in the Office Action that claims 4, 8-13, 17-20 are rejected in the Office Action under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has amended claims 4, 8, 12, 13 and 17-19 to overcome the 35 U.S.C. 112, second paragraph rejections.

Accordingly, withdrawal of the 35 U.S.C. 112, second paragraph rejections for claims 4, 8-13, 17-20 are respectfully requested.

## III. 35 U.S.C. § 103(a)

**A.** It is asserted in the Office Action that claims 1-3, 5-20 are rejected in the Office Action under 35 U.S.C. § 103(a), as being unpatentable over U. S. Patent No. 5,784,699 issued to McMahon et al. ("McMahon") and further in view of Donahue et al. in *Hardware Support for Fast and Bounded-time Storage Allocation*, March 22, 2002 ("Donahue"), and U. S. Publication No. 2002/0144073 by Trainin et al. ("Trainin"), *Data Structures and Algorithms* by John Morris ("doc. 1") and *Linked List Basics* by Nick Parlante, introduced for evidentiary references ("doc. 2"). Applicant traverses the aforementioned rejection for the following reasons.

According to MPEP §2142

> [t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "*All words in a claim must be considered* in judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added.)

Applicant's amended claim 1 contains the limitations of:

> a data memory which comprises a plurality of data blocks, each of which comprises a plurality of sub data blocks having a predetermined size, and when there is a request for allocating memory space of a variable size, allocates memory space in units of any one of the sub data blocks and the data blocks; a free list memory which manages a free

memory space of the data memory as an entry of a plurality of entries; and registers that store a plurality of head location information and a plurality of tail location information of the entry, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

Applicant' amended claim 14 contains the limitations of

in a data memory, (a) when n is a power of 2 and $i$ is a positive integer, if the size of a requested memory space for allocation is greater than $\frac{n}{2^i}$ bytes, allocating an $\frac{n}{2^{i-1}}$-byte memory space to a valid entry existing in an $\frac{n}{2^{i-1}}$-byte entry list managed by a free list memory; (b) if the size of a requested memory space for allocation is equal to or less than $\frac{n}{2^i}$, allocating an $\frac{n}{2^i}$-byte memory space to a valid entry existing in an $\frac{n}{2^i}$-byte entry list managed by the free list memory, but if there is no valid entry in the $\frac{n}{2^i}$-byte entry list, dividing the $\frac{n}{2^{i-1}}$-byte entry list and allocating the divided $\frac{n}{2^{i-1}}$-byte entry list as an $\frac{n}{2^i}$-byte memory space, and (c) storing a plurality of head location information and a plurality of tail location information, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

Applicant's amended claim 17 contains the limitations of

in a data memory, (a) when $n$ is a power of 2 and $i$ is a positive integer, if the size of a deallocated memory space will be greater than $\frac{n}{2^i}$ bytes, deallocating an $\frac{n}{2^{i-1}}$-byte memory space to a data memory and including an entry, corresponding to the memory space in an $\frac{n}{2^{i-1}}$-byte entry

> list managed by a free list memory; (b) if the size of a deallocated memory space will be equal to or less than $\frac{n}{2^i}$ bytes, deallocating a memory space of $\frac{n}{2^i}$ bytes to the data memory and including an entry corresponding to the memory space in an $\frac{n}{2^i}$-byte entry list managed by the free list memory, but if a memory space next to the memory space in the $\frac{n}{2^{i-1}}$-byte entry list managed by the entry which manages the deallocated memory space is not in use, including an entry, which corresponds to a memory space obtained by combining the deallocated memory space and the memory space next to the memory space in the $\frac{n}{2^{i-1}}$-byte entry list, in the $\frac{n}{2^{i-1}}$-byte entry list, and (c) storing a plurality of head location information and a plurality of tail location information, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

It is asserted in the Office Action that McMahon fails to disclose pointers and registers. Applicant agrees accordingly. Donahue is relied on for disclosing using pointers and use of registers. It is asserted in the Office Action that Donahue fails to teach head and tail pointers, but that it would be inherently taught based on reliance of doc. 1 and doc. 2. Even if McMahon, Donahue, doc. 1 and doc. 2 were combined, the resulting invention would still not teach, disclose or suggest:

> registers that store a plurality of head location information and a plurality of tail location information of the entry, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

or

> (c) storing a plurality of head location information and a plurality of tail location information, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

Therefore, even if McMahon, Donahue, doc. 1 and doc. 2 were combined, the resulting invention would still not include all of Applicant's claimed limitations. And, therefore, there would be no motivation to combine McMahon, Donahue, doc. 1 and doc. 2. Moreover, by viewing the disclosures of McMahon, Donahue, doc. 1 and doc. 2, one can not jump to the conclusion of obviousness without impermissible hindsight. According to MPEP 2142,

> [t]o reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention 'as a whole' would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the 'differences,' conduct the search and evaluate the 'subject matter as a whole' of the invention. The tendency to resort to 'hindsight' based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

Applicant submits that without first reviewing Applicant's disclosure, no thought, whatsoever, would have been made to

> registers that store a plurality of head location information and a plurality of tail location information of the entry, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

or

> (c) storing a plurality of head location information and a plurality of tail location information, wherein a first head location information in the plurality of head location information and a second head location information are used for allocation of different byte sizes in the data memory.

Neither McMahon, Donahue, doc. 1 and doc. 2, and therefore, nor the combination of the four, teach, disclose or suggest the limitations contained in Applicant's amended claims 1, 14 and 17, as listed above. Since neither McMahon, Donahue, doc. 1 and doc. 2, and therefore, nor the combination of the four, teach, disclose or suggest all the limitations of Applicant's amended claims1, 14 and 17, Applicant's amended claims 1, 14 and 17 are not obvious over McMahon in view of Donahue, doc. 1 and doc. 2 since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from amended claims 1, 14 and 17, namely claims 2-3 and 5-13, 15-16, and 18-20, respectively, would also not be obvious over McMahon in view of Donahue, doc. 1 and doc. 2 for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejections for claims 1-3, and 5-20 is respectfully requested.

**B.** It is asserted in the Office Action that claim 4 is rejected in the Office Action under 35 U.S.C. § 103(a), as being unpatentable over McMahon and Donahue, and further in view of Murdocca et al. ("Murdocca") *Principles of Computer Architecture, 2000.*

Applicant's amended claim 4 indirectly depends on amended claim 1. Applicant has addressed claim 1 regarding McMahon and Donahue above in section III(A).

Murdocca is relied on for inherently teaching that an address value is calculated. Murdocca, however, does not teach, disclose or suggest Applicant's amended claim 1 limitations of

> registers that store a plurality of head location information and a plurality of tail location information of the entry, wherein a first head location information in the plurality of

> head location information and a second head location information are used for allocation of different byte sizes in the data memory.

Neither McMahon, Donahue, Murdocca, and therefore, nor the combination of the three, teach, disclose or suggest the limitations contained in Applicant's amended claim 1, as listed above. Since neither McMahon, Donahue, Murdocca, and therefore, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claim 1, Applicant's amended claim is not obvious over McMahon in view of Donahue and Murdocca since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claim that indirectly depends from amended claim 1, namely claim 4, would also not be obvious over McMahon in view of Donahue and Murdocca for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection for claim 4 is respectfully requested.

## CONCLUSION

In view of the foregoing, it is submitted that claims 1-20 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

Dated: November 17, 2006

By: _____
Steven Laut, Reg. No. 47,736

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(310) 207-3800

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on November 17, 2006.

_____
Suzanne Johnston